

causing a problem, why do they need me to tell them again...)

Other Amateur stations (from the map that are able to hear the signal at their residence) include,

W4RLH  
KD6IET  
KM4UT  
K4ITL  
KC4SAM  
WA0AFW

This list, I believe covers everyone who lives within a 2 mile radius of any of the trial sites that are active on the Amateur HF bands. I have heard informally over the air of other stations who were operating mobile in the area that have experienced high levels of interference on Holland Church Road and James Slaughter Road, but to my knowledge none of them have yet filed a complaint direct to Bill Godwin.

Progress has acknowledged the interference and has I believe replied either in writing and/or via a phone call to all involved. In my mind what has been observed in the trial areas is sufficient evidence that the Amperion system as it exists today does and can cause levels of interference that would be categorized as "harmful". Progress has also stated that they have asked Amperion to modify their equipment to "notch out" the radio bands.

#### *From FCC Rules Part 15*

*Harmful interference. Interference which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs or repeatedly interrupts a radiocommunication service operating in accordance with the Radio Regulations.*

#### *Part 15.5 further states:*

(b) Operation of an intentional, unintentional, or incidental radiator is subject to the conditions that no harmful interference is caused and that interference must be accepted that may be caused by the operation of an authorized radio station, by another intentional or unintentional radiator, by industrial, scientific and medical (ISM) equipment, or by an incidental radiator.

(c) The operator of a radio frequency device shall be required to cease operating the device upon notification by a Commission representative that the device is causing harmful interference. Operation shall not resume until the condition causing the harmful interference has been corrected.

While Progress has been very cooperative with working the local Amateur Radio community, there has yet to be a demonstration of any sort of mitigation techniques with respect to interference. While the number of amateur radio operators within the trial communities is less than 2 dozen, this in no way diminishes the responsibility to mitigate reported interference based on numbers of affected users. I think it's also

3/12/2004

important that Progress, Amerion, the FCC, and local amateur operators realize that without exception, amateur operators within 1 mile of the sites with overhead distribution of BPL signals have been able to hear these signals with average amateur installations. Amateurs with more elaborate antenna systems can hear the signal greater than 1 mile. Unlike other forms of man-made and natural interference that occurs on HF bands, BPL signals are present continuously and at levels that prevent amateur stations from using the affected bands.

The extent of the effect upon skywave propagation we don't know, for a couple of reasons. For the past several months, due to the declining sunspot cycle, the 28.0 to 29.7 MHz amateur band has generally not been "open" to skywave propagation. Also, even if it was, how would a distant station determine the source of BPL that he might be hearing via skywave propagation. There is no identification that indicates the location, owner, etc. of the BPL equipment.

On January 15, 2004, Progress Energy invited local Amateur Radio Operators to observe a test location in southern Wake County. This site exhibited substantial levels of radiation in the 26-31 MHz range and we asked the Amerion Engineer to "swap" frequency blocks to demonstrate the mitigation capability. His reply suggested that the Amerion NOC (Network Operations Center) operator was busy with other tasks and hadn't the time to do so. Admittedly, no formal complaint was registered, but thoughts toward due diligence would have caused me to institute this change, if for no other reason than to confirm to Progress Energy and Amateur Radio Operators that it is an easy process.

That this was \*not\* done and has yet to be demonstrated despite several complaints by amateur operators of interference in the 10 Meter and 12 Meter amateur bands, suggests that it is not an easy process and one which could not be undertaken without significant re provisioning of the network.

Having said that, this absence of action or oversight, suggests that the interference mitigation process is not a simple undertaking. Further, if interference mitigation in a simple system, such as this single-span overhead example, cannot be easily accomplished, what will happen later, when a complex system is built and encountered?

The local amateur community is anxious to hear;

- when does Progress Energy expect to have a mitigation solution from Amerion?
- will we have an opportunity to test the solution for both interference to amateur operators as well as its resistance to being interfered with by amateur radio users?
- In the event that a mitigation solution cannot be arrived at within a few weeks, will Progress shut the system down until a solution is found?

I look forward to hearing from you in the near future.

Thank you,

3/12/2004

Message  
Frank A. Lynch, W4FAL  
ARRL NC Technical Specialist  
2528 Oakes Plantation Drive  
Raleigh, NC 27610-9328  
919-740-3957  
[w4fal@smithchart.org](mailto:w4fal@smithchart.org)

3/12/2004



Len Anthony, Progress Energy Regulatory Affairs

cc:

Bill Godwin, Progress Energy

Anh Wride, FCC

David H. Solomon, FCC

James R. Burtie, FCC

Riley Hollingsworth, FCC (FYI)

Ed Hare, ARRL

Frank A. Lynch, ARRL

Saturday, March 13, 2004

This e-mail letter is a formal complaint of interference received from several Broadband over Power Line (BPL) installations operated by Progress Energy in the Wake County, North Carolina area.

I am:

Gary Pearce KN4AQ

116 Waterfall Ct.

Cary, NC 27513

919-380-9944

[kn4aq@arrl.net](mailto:kn4aq@arrl.net)

I encountered all of this interference while mobile, or visiting the stations of other amateur radio operators. I do not hear any BPL interference at my home in Cary at this time.

November 16, 2003. I first encountered BPL interference on this date, near the Wakefield subdivision in north Raleigh, along Falls of the Neuse Road near Wakefield Pines Rd. The interference appeared as a series of closely spaced RF carriers, approximately 1 kHz apart, covering the lower half of the 10 meter amateur radio band, from 28 to near 29 MHz (and some spectrum below that band, including the 40 CB radio channels near 27 MHz). Some of the carriers had a little "tik-tik-tik" sound at about a 2 Hz rate. The interference was strong - S-9 - for about a half mile along Falls of the Neuse Road, and obliterated several amateur radio signals that I was monitoring.

I understand this was the Phase I trial area, and the test has been discontinued.

January 15, 2004. On this and several subsequent dates, I received interference while driving along Holland Church road between 1010 Road and Pagan Rd. in southern Wake County, specifically in the vicinity of Feldman Dr. The signature of the interference was the same: closely spaced carriers, about 1 kHz apart, some with a tik-tik-tik modulation, and occasionally a longer burst of what sounded like data. The interference covered two blocks of spectrum, from 23.44 - 26.08 MHz (including the amateur radio 12 meter band) and 27.9 - 31.7 MHz, (including the amateur radio 10 meter band). The interference was strong - S-9 - for about a half mile along Holland Church road, and audible in places along Pagan Rd. It obliterated several amateur radio signals that I was monitoring as I drove through the area.

I also received interference with the same signature in several spots along Feldman Dr., in various other segments of the high-frequency spectrum - near 11 and 15 MHz in particular. The signals were weaker, but plainly audible. One caused a "beat note" against the 15 MHz WWV time and frequency reference signal.

I have subsequently been through this area several times, and the interference is still present. My last visit was on February 28th.

February 20, 2004. On this and several subsequent dates, I received interference while driving along NC Highway 55 and James Slaughter Rd, just north of the town of Fuquay-Varina. The interference was strongest along James Slaughter Road, opposite the Woodchase subdivision. Again, the signature of the interference was RF carriers, about 1 kHz apart, with a bit of digital modulation now and then, including the tik-tik-tik at about a 2 Hz rate.

This interference was across 21.9-25.7 MHz (including the amateur radio 12 meter band) and 27.5-30.0 MHz (including the amateur radio 10 meter band). The interference was S-9 along James Slaughter Road, and S-5 in the Food Lion parking lot at NC-55, and obliterated several amateur radio signals that I was monitoring.

In the Woodchase subdivision, I also heard the "BPL signature" signals on several other points in the high frequency spectrum. The signals were weaker, but plainly audible. I also heard signals in the 7 and 24.5 MHz area about a mile further north on James Slaughter Road, near the Whitehurst subdivision. These signals were S-6 to S-9 for about 1/4 mile along James Slaughter Road.

I most recently heard this interference on March 5th, 2004.

Finally, on February 28, 2004, I personally visited the homes of three amateur radio operators who live in the vicinity of the Progress Energy Phase II BPL trials, and observed interference as received at their stations as follows:

Mike Payne KM4UT  
5813 HEATHILL CT  
Raleigh, NC

Mike lives .7 miles south of the trial site on Holland Church Road. He is using a dipole antenna at about 30 feet. I observed that he was receiving a clear but weak BPL "signature" in the top half of the 10 meter band, above 28.8 MHz, and many smaller clusters of individual carriers in the band below that.

Ted Root N1UJ  
509 WYNDHAM DR  
Fuquay-Varina, NC

Ted is about a half mile southwest of the James Slaughter Road site. He is also using a dipole antenna at about 40 feet. He was receiving weak but clear BPL signature signals across the 25 and 28 MHz areas.

Roland Erickson WA0AFW  
201 WILBON ROAD 301B  
Fuquay-Varina, NC

Roland is about a half mile south of the James Slaughter Rd. site. He is using a dipole antenna in the attic of a retirement village building. He has a very high ambient noise level (S-6) across the 25 and 28 MHz bands, but was receiving the BPL signature signals clearly above that noise level across those bands.

You might ask if my complaint of interference while mobile, some distance from my home, is justified. I contend that it is, for several reasons.

First, amateur radio is a very "mobile" service. Tens of thousands of amateur radio operators have and use high frequency mobile equipment, and we can be found anywhere, using all hf bands, at completely unpredictable times.

Second, the Progress Energy Phase II trials are in very limited area tests. There are no amateur radio operators living inside the neighborhoods being served, though there are several within interference range - about a mile. We are justified in traveling to the sites with normal amateur radio equipment, operated in a normal manner, to observe and complain about interference we receive. This observation must be extrapolated to a wider geographic area to anticipate the kind of interference that would be received if BPL were to be widely deployed, especially in denser suburban and urban neighborhoods.

You might also ask if weak BPL signals constitute harmful interference. I contend that they do. Amateur radio operation is unlike most other radio operation, in that amateurs tune across their band segments looking for signals. Often we are looking for weak signals from distant parts of the world. Our predominant modes are single sideband and cw. In those modes, a series of carriers 1 kHz apart presents a most irritating series of "beat notes" - tones that vary in pitch as the spectrum is tuned. At 1 kHz spacing, they are continuously present in a receiver using customary bandwidth filters. And even weak BPL signals can make weak amateur radio signals difficult or impossible to receive.

The presence of any BPL signal of any strength at either a home or mobile station at any location is an unwarranted incursion in the amateur radio bands, and is also a problem for anyone tuning shortwave broadcast or other radio services.

Thanks for your consideration. I look forward to hearing the results of the investigation into my complaints.

Sincerely,

Gary Pearce KN4AQ

---

Gary Pearce KN4AQ      editor, SERA Repeater Journal  
Cary, NC                      [www.sera.org](http://www.sera.org)  
919-380-9944                [kn4aq@sera.org](mailto:kn4aq@sera.org)  
[kn4aq@arrl.net](mailto:kn4aq@arrl.net)  
AOL/Yahoo Instant Messenger: KN4AQ  
(send e-mail to be put on my "buddy list")

## Alan Stillwell

---

**From:** Anh Wride  
**Sent:** Monday, March 29, 2004 1:15 PM  
**To:** Bruce Franca; Alan Stillwell; Karen Rackley; Alan Scrim; William Hurst; Steve  
**Subject:** FW: 2nd interference complaint regarding Progress Energy Phase II BPL

fyi

-----Original Message-----

**From:** Gary Pearce KN4AQ [mailto:kn4aq@arri.net]  
**Sent:** Monday, March 29, 2004 12:57 PM  
**To:** len.anthony@pgnmail.com  
**Cc:** Anh Wride; James Burtle; w1rfi@arri.org; w4fal@smithchart.org; Bill Godwin; Riley Hollingsworth  
**Subject:** 2nd interference complaint regarding Progress Energy Phase II BPL

To: Len Anthony, Progress Energy Regulatory Affairs

From: Gary Pearce KN4AQ  
116 Waterfall Ct.  
Cary, NC 27513  
919-380-9944  
kn4aq@arri.net

cc:  
Bill Godwin, Progress Energy  
Anh Wride, FCC  
James R. Burtle, FCC  
Riley Hollingsworth, FCC (FYI)  
Ed Hare, ARRL  
Frank A. Lynch, ARRL

Monday, March 29, 2004

This e-mail letter is a second formal complaint of interference received from several Broadband over Power Line (BPL) installations operated by Progress Energy in the Wake County, North Carolina area. This complaint covers interference on NEW frequencies that was not present in my first complaint filed on March 13th.

3/29/2004



In my March 13th complaint I detailed interference that I observed while operating my mobile amateur radio equipment in the vicinity of the Progress Energy Phase II BPL trial areas in southern Wake County, North Carolina. No one from either Progress Energy or the FCC has contacted me as a result of that complaint (except a request from the FCC to drop David Solomon from the recipient list, which I have done). I have seen Bill Godwin in a somewhat chance encounter at the Holland Church site, and we had a good discussion on the state of the trial.

**I have observed that Progress Energy has changed the spectrum used for the overhead line segments in both trial areas. If I'm correctly assuming that this was done to respond to complaints, and demonstrate frequency agility and the ability to mitigate interference by avoiding amateur radio spectrum, the attempt is appreciated, but it was not completely successful. New amateur radio and shortwave spectrum is now receiving interference, and that is the basis of this complaint.**

**On March 20, 2004**, in the Woodchase subdivision area near Fuquay-Varina, where BPL signals had covered the 12 and 10 meter bands, I observed clear, strong BPL signature signals from 21.5 to 24.90 MHz, and 25.49 to 28.0 MHz. This almost cleared amateur radio spectrum, but not quite.

The lower segment, from 21.50 to 24.90 MHz, encroached clearly on the bottom 10 kHz of the 12 meter band, from 24.89 to 24.90 MHz, and what I'll call "residual" BPL carriers - carriers at the edge of the main spectrum that trail off in amplitude over the course of 10 to 20 kHz - encroached further. The residual carriers present a correspondingly decreasing problem of interference, but when the bulk of the BPL carriers are strong, the residual carriers can also interfere with weak amateur radio signals.

Note that if a BPL operator is attempting to place a BPL block adjacent to the bottom of an amateur band, they should be aware that these residual carriers will fall across an area of extreme interest where amateurs use Morse code to communicate with distant, often very weak, amateurs in remote parts of the globe. Additional care should be taken to avoid letting this "residual" interference cross the bottom few kHz of any amateur band.

The higher segment, from 25.49 to 28.0 MHz, also left some residual carriers encroaching on the bottom of the 10 meter band at 28 MHz. The main carriers did cover all 40 CB channels and interfered with signals I monitored there.

Then I drove through the Holland Church Road trial site and observed no change since my March 13th complaint - the BPL signals still covered the 12 and 10 meter ham bands and adjacent spectrum.

**On March 23, 2004**, I returned to the Holland Church Road trial area. That's when I ran into Bill Godwin and two other Progress Energy engineers, observing and reporting on some difficulty that Amperion was having moving the spectrum on the overhead line. The signals were gone from the 12 and 10 meter bands, and appeared erratically elsewhere. Since this was an effort in progress, I didn't worry about the signals I received.

3/29/2004

On March 28, 2004, I returned to the Holland Church site again. This time I monitored signals on the following spectrum blocks:

14.29 - 16.805 MHz

17.33 - 21.00 MHz

24.53 - 28.00 MHz (with 12 meter notch?)

Reception was somewhat difficult because of a high general noise level (what we usually refer to as "power line noise," ironically in this case. The true source of this particular noise is unknown). The BPL signature signals were generally strong and clear above this noise.

After observing what appeared to be an attempt to completely avoid amateur radio spectrum at the Woodchase trial area, I was disappointed to see that two busy amateur radio bands were partially or fully covered here: 20 and 17 meters. The BPL carriers interfered with many signals as I tuned from 14.29 to the band-edge of 14.35 MHz in the 20 meter band. Strong signals were audible, but BPL carriers placed a loud "beat note" behind them, making reception irritating at best. Weaker signals were rendered unreadable.

I had the same situation across the entire 17 meter band, from 18.068 to 18.168 MHz. Weaker signals were impossible to receive, while stronger ones were accompanied by a loud heterodyne whistle.

I also tried listening to some shortwave broadcast signals in the spectrum immediately above the 20 meter ham band. **Switching to AM reception with a 6 kHz band pass filter, I noticed that the BPL signals were a continuous "blanket" across the spectrum.** Since the BPL carriers were 1.1 kHz apart, I heard the expected 1.1 kHz heterodyne tone as part of that interference blanket.

The 15 MHz signal from WWV was completely inaudible. Stronger shortwave signals were audible with varying degrees of interference. Weaker signals on 15.160, 15.205, 15.300, and 15.350 MHz were detectable but not readable. This was just a brief sample of the many shortwave signals that received interference from the BPL energy.

I could not observe any "residual" carriers spilling into the 15 meter ham band as the "power line noise" made it difficult to hear the weakest BPL carriers. With some difficulty I observed what appeared to be a notch in the 24.53 - 28.0 MHz block. The carriers were at least attenuated in the 24.89 - 24.99 MHz area (the 12 meter ham band), but I thought I could hear some weaker carriers through the "power line noise".

That is my report. I'll repeat my contention from my first complaint that interference reports from mobile stations are warranted because:

- amateur radio is a very mobile radio service,
- these are very limited trial areas, and the experience and results must be extrapolated to predict the effect BPL will have if widely deployed in densely populated areas.

3/29/2004

message  
I'll conclude with an example of truly random interference caused by BPL to a mobile ham who was not part of, or recruited by, our investigation team:

Over the past few weeks I've had an e-mail exchange with Andy Stoy K4MTN, from Wake Forest, NC. Initially, Andy's e-mail sounded like many that Tom Brown N4TAB, Frank Lynch W4FAL and I have received from area hams who suspect that they are hearing BPL interference from areas where none is known to exist. Andy said he had been hearing loud interference - he called it "static" - for months along a half-mile stretch of Falls of the Neuse Road near the Woodfield subdivision. He was describing the Phase I trial area which we believed to have been disconnected, and his description of "static" didn't sound like the BPL signature we're used to.

I pressed him for more specific details, and he finally described the exact location, and the signature sound (closer-spaced carriers with a clicking sound) of Amperion's BPL. Tom Brown traveled to the site and confirmed that the Phase I equipment was still operating on the overhead line along Falls of the Neuse Rd. Andy traveled that route daily, and regularly operates on the 10 meter band. He had been receiving interference and loss of communications on that stretch of road since at least last fall, but didn't know what caused the problem until we began publicizing the trials. Then he contacted us. He will be filing his own report of interference.

Andy's story may seem isolated, a rare, chance occurrence. It is significant for several reasons. One is that it happened at all, since there is a total of less than two miles of BPL coverage along Wake County highways. Another is that hams don't know what BPL is yet. We've reached a few with our message, but many more have never heard of it. So there may be a few more Andy Stoy's out there who have passed through the existing trials areas, received interference, and didn't know what it was or who to call.

I appreciate the fact that Progress Energy and Amperion are responding to our reports and complaints of interference. I'd prefer to just call them "reports," but public proclamations that "there have been no interference complaints" have pushed us to this formal posture. My goal is to make you (Progress Energy and the FCC) aware of the real conditions for radio amateurs and other HF spectrum users in the trial area so that you can anticipate the level of difficulty you can expect in a broader implementation.

I'd expect that Progress Energy and Amperion could completely avoid amateur radio spectrum in the overhead segments of this limited trial area. I'm surprised that after the first complaints, you moved to occupy different amateur radio spectrum. But even if you had completely missed ham bands in this first move, success in this limited arena is not a good predictor of the ability to mitigate interference in a full system, where you will be constrained to use more spectrum and not re-use spectrum for several line segments. And the question of interference from the underground line segments has not been addressed at all.

Sincerely,

Gary Pearce KN4AQ

3/29/2004

===== KN4AQ's March 13, 2004 complaint, for reference =====

I encountered all of this interference while mobile, or visiting the stations of other amateur radio operators. I do not hear any BPL interference at my home in Cary at this time.

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5813 HEATHILL CT  
Raleigh, NC

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509 WYNDHAM DR  
Fuquay-Varina, NC

Ted is about a half mile southwest of the James Slaughter Road site. He is also using a dipole antenna at about 40 feet. He was receiving weak but clear BPL signature signals across the 25 and 28 MHz areas.

Roland Erickson WA0AFW  
201 WILBON ROAD 301B  
Fuquay-Varina, NC

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Message

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Thanks for your consideration. I look forward to hearing the results of the investigation into my complaints.

Sincerely,

Gary Pearce KN4AQ

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Gary Pearce KN4AQ     editor, SERA Repeater Journal  
Cary, NC                [www.sera.org](http://www.sera.org)  
919-380-9944            [kn4aq@sera.org](mailto:kn4aq@sera.org)  
[kn4aq@arrl.net](mailto:kn4aq@arrl.net)  
AOL/Yahoo Instant Messenger: KN4AQ  
(send e-mail to be put on my "buddy list")

3/29/2004

Alan Stillwell

---

**From:** James Burtie  
**Sent:** Wednesday, March 31, 2004 8:09 AM  
**To:** Alan Scrimie; Alan Stillwell; Bruce Franca; Bruce Romano; Anh Wride  
**Subject:** FW: Complaint: BPL Interference in N.Raleigh, NC

-----Original Message-----

**From:** Anthony, Len [mailto:len.anthony@pgnmail.com]  
**Sent:** Tuesday, March 30, 2004 8:19 PM  
**To:** James Burtie  
**Cc:** Oja, Matt; Godwin, Bill  
**Subject:** RE: Complaint: BPL Interference in N.Raleigh, NC

*Progress Energy*  
*Andrew Stoy*

Thank you for forwarding the attached complaint to my attention. The BPL equipment used in the Wakefield trial has now been deactivated and removed. Therefore, all interference in this area should have ceased. Len Anthony

-----Original Message-----

**From:** James Burtie [mailto:James.Burtie@fcc.gov]  
**Sent:** Mon 3/29/2004 4:08 PM  
**To:** Anthony, Len; Alan Scrimie; Alan Stillwell; Bruce Franca; Bruce Romano; Anh Wride  
**Cc:**  
**Subject:** FW: Complaint: BPL Interference in N.Raleigh, NC

-----Original Message-----

**From:** andy stoy [mailto:astoy2@nc.rr.com <mailto:astoy2@nc.rr.com> ]  
**Sent:** Monday, March 29, 2004 1:49 PM  
**To:** len.anthony@pgnmail.com; Anh Wride; James Burtie; Alan Stillwell; wlrfi@arrl.org; w4fal@smithchart.org  
**Subject:** Complaint: BPL Interference in N.Raleigh, NC

Andrew Stoy, K4MTN  
1809 Bagshot Ct.  
Wake Forest, NC 27587  
919/554-0342  
K4MTN@arrl.net

March 26, 2004

Mr. Anthony:

I am an amateur radio operator who holds an Extra Class license issued by the FCC. Since I live in the Wake Forest area, I frequently travel Falls of Neuse Rd. in the area of the Wakefield development. My vehicle is equipped with a Yaesu FT-900 high frequency transceiver which I use for regular communication on the 10, 15 and 20 meter amateur bands.

In the Fall of 2003 I started to notice VERY STRONG interference as I drove past the entrance of the Wakefield development near the Wakefield High School. I have continued to hear this interference on a regular basis, but was unable to identify it.

Finally, on March 18, 2004, my communications on the 10 meter band was completely wiped out by the interference. I parked my vehicle in the Wakefield High School parking lot and tried to determine the scope and origin of the interference using my transceiver and 8' whip antenna

tuned for 10 meters.

The noise was a series of carriers a little over 1 kHz. apart. I was able to hear it from 26.0075 MHz to 28.7015. In addition to the carriers I could hear a constant ticking sound across the 10 and 11 meter bands.

While monitoring this interference, communications was impossible due to the high noise level. Anything that could cause this much interference and render communications useless caused me to be very concerned. When I

returned home I contacted some local Amateurs to see if they had experienced anything like this. I then learned that I had been listening to a BPL test installation.

I wanted to notify you and other interested parties, especially the FCC, of the magnitude of this interference to assigned Amateur Service and Citizens Service frequencies. Feel free to contact me to discuss my experiences further if you would like additional information.

Regards,  
Andrew Stoy



**Alan Stillwell**

---

**From:** James Burtle  
**Sent:** Thursday, April 15, 2004 7:36 AM  
**To:** Alan Stillwell; Bruce Franca; Bruce Romano; Anh Wride; Alan Scrim  
**Subject:** FW: Progress Energy Interference Complaints - Who should these be directed to?

-----Original Message-----

**From:** Frank A. Lynch [mailto:flynch@nc.rr.com]  
**Sent:** Tuesday, April 13, 2004 2:58 PM  
**To:** Riley Hollingsworth; Raymond Laforge; James Burtle  
**Cc:** Gary Pearce; Tom Brown; Frank A. Lynch  
**Subject:** Progress Energy Interference Complaints - Who should these be directed to?

The local amateur radio community, land mobile, and other interested users of the 2 MHz to 50 MHz spectrum in and around the Progress Energy BPL trial in southern Wake County, would like a determination from the FCC, to whom interference complaints are to be addressed.

Initially we (the Amateur Radio Community) were told that since Progress Energy had an experimental license, that the Experimental Licensing Division of the Office of Engineering and Technology was responsible for those complaints.

Through some investigation on my part, I have learned that both of the current trial areas are outside the 20 km radius specified in WD2CXA;

Within a 20 km radius of Raleigh (WAKE), NC - NL 35-56-58; WL 78-34-23

Furthermore, queries to Progress Energy's Bill Godwin also indicated that it was his understanding that the Experimental license was only for the initial "Phase I" trial in Wakefield Plantation in northern Wake County.

That implies, does it not, that the Amperion equipment in the Southern Wake County has now achieved Part 15 compliance by either (a) Verification, (b) Declaration of Conformity, or (c) Certification. If not they would be operating with non-type accepted equipment, correct?

Does this now mean that responsibility for interference complaints falls on the FCC Enforcement Bureau? We are anxious to get some resolution to interference in the amateur radio bands. While Progress has attempted to "move" and "notch" spectrum around the amateur radio bands, they have not been entirely successful in doing so. A full report of the April 6, 2004 activity with Progress Energy, Tom Brown N4TAB, and Gary Pearce KN4AQ is available on the ARRL web page at <http://www.arrl.org/news/stories/2004/04/08/3/?nc=1>

Finally, isn't it true that even for verified equipment (which is probably the type of certification that would have been done on this equipment), that someone at the FCC has a test report. In reviewing the data submitted against the experimental license, I note that a FCC Part 15B report was submitted. The copy that is on the FCC's public experimental licensing site, has had all the pertinent test results removed from it. Would it be possible to get a copy of the full report for use in preparing comments to the NPRM?

We also note that equipment we have looked at on the overhead spans and equipment that was photographed by the press during Chairman Powell's visit in March, doesn't appear to have the required identification as per the FCC rules:

**Sec. 2.954 Identification.**

Devices subject only to verification shall be uniquely identified by the person responsible for marketing or importing the equipment within the United States. However, the identification shall not be of a format which could be confused with the FCC Identifier required on certified, notified or type accepted equipment. The importer or manufacturer shall maintain adequate identification records to facilitate positive identification for each verified device.

**Sec. 15.19 Labeling requirements.**

(a) In addition to the requirements in part 2 of this chapter, a device subject to certification, or verification shall be labeled as follows:

(3) All other devices shall bear the following statement in a conspicuous location on the device:

*This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.*

I look forward to hearing from you on this matter.

Frank A. Lynch, W4FAL  
ARRL NC Technical Specialist,  
2528 Oakes Plantation Drive  
Raleigh, NC 27610-9328  
919-740-3957  
[w4fal@smithchart.org](mailto:w4fal@smithchart.org)

## Alan Stillwell

---

**From:** Frank A. Lynch [flynch@nc.rr.com]  
**Sent:** Monday, April 26, 2004 4:14 PM  
**To:** Anthony, Len; James Burtle  
**Cc:** Alan Stillwell; Chris Imlay; Gary Pearce; Oja, Matt; Godwin, Bill; Tom Brown; Ed Hare  
**Subject:** Re: Progress Energy Carolinas BPL Trial

Mr. Anthony,

I am sorry to see PEC take this stance. It appears that any cooperation that we had going with PEC on trying to see if a workable solution could be found will now be lost as corporate attorney's move in to "fix" what the equipment vendors and PEC's technical staff have not been able to do.

Mobiles have been used in this trial as an indicator to assess BPL's radiation characteristics at various distances from the BPL site. Why is this important? In a small trial area such as the PEC trial in Southern Wake County, conveniently there are less than a dozen active amateur radio operators within a 2 mile radius of the sites.

Because BPL signals are not identified with any sort of morse code or other human readable over the air identifier, myself, Tom Brown N4TAB, and Gary Pearce KN4AQ in our respective roles as ARRL Field Appointees have attempted to work with local hams to educate them about what BPL is and is not. We have also attempted to work with PEC to avoid the amateur radio portions of the spectrum as well as some other important users of the spectrum that the Amperion equipment is capable of operating on (for instance the NC Highway Patrol, NC Forest Service,) as I did in my email to you and Bill Godwin a few weeks ago.

At present we still have BPL signals that can be heard at some of the fixed stations on some bands. While you may not think that mobile reception is significant (and with all due respect, it's not you or I that determine that, it's the FCC), it goes without saying that in any of the areas where BPL is easily heard with a mobile, would surely yield a complaint from a fixed station user if one were there.

We have all heard a great deal about how easy interference mitigation is with BPL. I also know how long and how hard Bill Godwin and his team have worked to do what has been done to date since we first observed the Holland Church Road system back on Jan 15, 2004.

Yesterday members of our team visited both the Holland Church Road site and the sites along James Slaughter Road.

The first stop was at Holland Church Road where we observed that 17 meters was still impacted from radiation along the overhead segments. It appears that the additional overhead span repeaters that were installed have resulted in lower radiated signal levels (of course....)

All of 17 meters and all of 40 meters is now impacted at the Woodhurst entrance and along that section of the overhead spans. Further down James Slaughter Road from the Woodchase entrance to Hwy 55 (including the Food Lion parking lot) has all of 12 meters blanketed and the lower few kHz of 10 meters impacted.

From what we have seen here in Raleigh and what we've heard from our counterparts in other parts of the country where Amperion equipment is being used, I'm starting to come to the conclusion is that any real

world deployment in a place like Cary for example with an amateur population of over 300, will be a deployment disaster for all.

PEC will have major interference (which we have already demonstrated at Holland Church) from licensed amateur operators who are operating or attempting to operate over the BPL interference. The amateur operators will experience interference on wide swaths of frequencies in the HF bands as have been observed at both trial sites.

With 300 plus amateurs in a suburban deployment, PEC won't have anything left after all the notching and masking is done... It will be all hole and no doughnut! This isn't rocket science. I've been an electrical engineer specializing in Communications for nearly 30 years. Just as many of your staff engineers at PEC, I attended NCSU back in the early and mid 70's. I know PEC has a number of engineers and amateur radio operators on staff. Some of which I know. What do they say about BPL? If asked without fear of retribution, I'll bet that none of them who attended Dr. Flood's Electromagnetism class, think that you can run HF signals down a 2000 ft unshielded wire and not have it radiate.

I am asking the FCC to have PEC remove the interference from all the amateur radio bands or shut the system down. How many complaints have to be made before the OET and/or the Enforcement Bureau decides to take a look at this trial system to get some idea of what a large scale BPL deployment is going to be like?

Sincerely,

Frank A. Lynch, W4FAL  
ARRL NC Technical Specialist,  
2528 Oakes Plantation Drive  
Raleigh, NC 27610-9328  
919-740-3957  
[w4fal@arrl.net](mailto:w4fal@arrl.net)

— Original Message —

From: Anthony, Len  
To: [James.Burtie@fcc.gov](mailto:James.Burtie@fcc.gov); [kn4aq@arrl.net](mailto:kn4aq@arrl.net); [flynch@nc.rr.com](mailto:flynch@nc.rr.com)  
Cc: Oja, Matt; Godwin, Bill  
Sent: Tuesday, April 20, 2004 7:57 PM  
Subject: Progress Energy Carolinas BPL Trial

PEC has met with representatives of the ham radio operators in the Raleigh area. Joint measurements of the impact of PEC's BPL system on ham radio transmissions in and around the two subdivisions where BPL service is offered were taken. These measurements occurred subsequent to PEC modifying its BPL system to minimize interference with ham radio transmissions. These tests revealed a small level of interference at the fringes of certain frequencies. Since that time, further modifications have been made to address this fringe interference. It is PEC's position and interpretation of the FCC's rules with regard to "harmful interference" that any interference that may still exist is not "harmful" as that term is defined by the FCC's rules. This level of interference does not seriously degrade ham radio operation or transmissions or cause repeated interruptions. Importantly, since PEC can make modifications to completely eliminate any interference with fixed ham operators, the!

only impact of any kind upon ham operations is upon mobile operators. Given that any interference experienced by a mobile operator only occurs within close proximity to the BPL facilities, such interference would be very short lived. Thus, PEC is not causing any harmful interference and is in full

**compliance with the FCC's Part 15 rules.**

**James Burtle**

**From:** Anh Wride  
**Sent:** Wednesday, April 28, 2004 12:45 PM  
**To:** 'flynch@nc.rr.com'  
**Cc:** James Burtle; Riley Hollingsworth; Raymond Laforge  
**Subject:** Response to your email on BPL

Mr. Lynch:

This message is in response to your email dated April 13, 2004, addressed to various FCC personnel. The response to each question is provided in CAPS and BLACK BOLD font below. Thank you for taking the time to write to the FCC. If you have any other question, please do not hesitate to email us.

Anh Wride  
FCC OET

-----Original Message-----

**From:** Frank A. Lynch [mailto:flynch@nc.rr.com]  
**Sent:** Tuesday, April 13, 2004 2:58 PM  
**To:** Riley Hollingsworth; Raymond Laforge; James Burtle  
**Cc:** Gary Pearce; Tom Brown; Frank A. Lynch  
**Subject:** Progress Energy Interference Complaints - Who should these be directed to?

The local amateur radio community, land mobile, and other interested users of the 2 MHz to 50 MHz spectrum in and around the Progress Energy BPL trial in southern Wake County, would like a determination from the FCC, to whom interference complaints are to be addressed.

**RESPONSE: THE POWER COMPANY SHOULD BE THE FIRST ONE TO BE CONTACTED FOR ANY INTERFERENCE COMPLAINT. THE FCC SHOULD BE INVOLVED ONLY IF INTERFERENCE PROBLEMS REMAIN AFTER THE BPL OPERATOR HAS BEEN CONTACTED AND AFFORDED THE OPPORTUNITY TO TAKE CORRECTIVE ACTIONS.**

Initially we (the Amateur Radio Community) were told that since Progress Energy had an experimental license, that the Experimental Licensing Division of the Office of Engineering and Technology was responsible for those complaints.

Through some investigation on my part, I have learned that both of the current trial areas are outside the 20 km radius specified in WD2CXA;

Within a 20 km radius of Raleigh (WAKE), NC - NL 35-56-58; WL 78-34-23

Furthermore, queries to Progress Energy's Bill Godwin also indicated that it was his understanding that the Experimental license was only for the initial "Phase I" trial in Wakefield Plantation in northern Wake County.

That implies, does it not, that the Amperion equipment in the Southern Wake County has now achieved Part 15 compliance by either (a) Verification, (b) Declaration of Conformity, or (c) Certification. If not they would be operating with non-type accepted equipment, correct?

**RESPONSE: IF THE EQUIPMENT IS COMPLIANT WITH PART 15, IT MAY BE DEPLOYED. CARRIER CURRENT SYSTEMS AND BPL ARE COVERED UNDER OUR VERIFICATION PROCEDURE. THE FCC OFFICE**

10/19/2004

OF ENGINEERING AND TECHNOLOGY(OET ) HAS HAD DISCUSSIONS WITH AMPERION AND HAS LOOKED AT TEST DATA FROM AMPERION BPL DEVICES INDICATING COMPLIANCE WITH PART 15.

Does this now mean that responsibility for interference complaints falls on the FCC Enforcement Bureau? We are anxious to get some resolution to interference in the amateur radio bands. While Progress has attempted to "move" and "notch" spectrum around the amateur radio bands, they have not been entirely successful in doing so. A full report of the April 6, 2004 activity with Progress Energy, Tom Brown N4TAB, and Gary Pearce KN4AQ is available on the ARRL web page at <http://www.arrl.org/news/stories/2004/04/08/3/?nc=1>

**RESPONSE:** THE POWER COMPANIES MUST BE GIVEN A CHANCE TO ADDRESS ANY SUBSTANTIATED INTERFERENCE COMPLAINT BECAUSE THIS IS THE FASTEST AND MOST EFFICIENT WAY TO MITIGATE ANY POTENTIAL INTERFERENCE. SO FAR, IT APPEARS THAT PROGRESS ENERGY IS WORKING DILIGENTLY IN ADDRESSING EACH CASE OF INTERFERENCE CAUSED BY BPL, HOWEVER, OET WILL CONTINUE TO ADDRESS INTERFERENCE COMPLAINTS.

Finally, isn't it true that even for verified equipment (which is probably the type of certification that would have been done on this equipment), that someone at the FCC has a test report.

**RESPONSE:** NO, IF THE EQUIPMENT FALLS UNDER THE VERIFICATION PROCEDURE, THE MANUFACTURER KEEPS A COPY OF THE TEST REPORT, NOT THE FCC. HOWEVER, AS INDICATED ABOVE, OET HAS HAD DISCUSSIONS WITH AMPERION AND OET HAS LOOKED AT TEST DATA FROM AMPERION BPL DEVICES INDICATING COMPLIANCE WITH PART 15.

In reviewing the data submitted against the experimental license, I note that a FCC Part 15B report was submitted. The copy that is on the FCC's public experimental licensing site has had all the pertinent test results removed from it. Would it be possible to get a copy of the full report for use in preparing comments to the NPRM?

**RESPONSE:** IT APPEARS THAT THE TEST RESULT PAGES IN THE TEST REPORT SUBMITTED BY AMPERION WERE BLANK AS A RESULT OF A TRANSMISSION ERROR. OET IS REQUESTING THE MISSING PAGES FROM AMPERION AND THE MISSING INFORMATION WILL BE UPLOADED TO OUR WEB SITE WHEN RECEIVED.

We also note that equipment we have looked at on the overhead spans and equipment that was photographed by the press during Chairman Powell's visit in March, doesn't appear to have the required identification as per the FCC rules;

#### Sec. 2.954 Identification.

Devices subject only to verification shall be uniquely identified by the person responsible for marketing or importing the equipment within the United States. However, the identification shall not be of a format which could be confused with the FCC Identifier required on certified, notified or type accepted equipment. The importer or manufacturer shall maintain adequate identification records to facilitate positive identification for each verified device.

#### Sec. 15.19 Labeling requirements.

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This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**RESPONSE:** UNDER SEC. 2.954, EQUIPMENT SUBJECT TO VERIFICATION MUST BE APPROPRIATELY LABELED AS STATED IN YOUR EMAIL. OET HAS CONTACTED AMPERION AS TO THE LABELING OF ITS BPL EQUIPMENT. AMPERION RESPONDS THAT ITS EQUIPMENT ARE APPROPRIATELY LABELED, HOWEVER, THESE LABELS ARE NOT VISIBLE AFTER INSTALLATION IN UNDERGROUND INSTALLATIONS AS A USER-SUPPLIED OUTER ENCLOSURE IS EMPLOYED. THE LABELS ARE HOWEVER VISIBLE ON OVERHEAD INSTALLATIONS BUT MAY NOT BE LEGIBLE OVER 30 FEET IN THE AIR.

I look forward to hearing from you on this matter.

Frank A. Lynch, W4FAL  
ARRL NC Technical Specialist,  
2528 Oakes Plantation Drive  
Raleigh, NC 27610-9328  
919-740-3957  
[w4fal@smithchart.org](mailto:w4fal@smithchart.org)



## Alan Stillwell

---

**From:** James Burtle  
**Sent:** Wednesday, May 05, 2004 10:22 AM  
**To:** Alan Stillwell; Anh Wride; Bruce Franca; Bruce Romano  
**Subject:** FW: Interference Complaint Regarding your BPL System

*3 Fletcher Penn II*

-----Original Message-----

**From:** Anthony, Len [mailto:Len.S.Anthony@pgnmail.com]  
**Sent:** Sunday, April 25, 2004 11:07 AM  
**To:** James Burtle  
**Subject:** FW: Interference Complaint Regarding your BPL System

Once I receive the additional information Progress will evaluate Mr. Penn's allegations.  
Len

-----Original Message-----

**From:** Anthony, Len  
**Sent:** Sun 4/25/2004 10:38 AM  
**To:** Fletch; Len Anthony (E-mail); Godwin, Bill; Oja, Matt; James.Burtle@fcc.com; Manning, Marsha  
**Cc:** Alan R. Stillwell (E-mail); Anh Wride (E-mail); Ed Hare (E-mail); Frank A. Lynch (E-mail); James R. Burtle (E-mail); Riley Hollingsworth (E-mail); Dennis Rysell (E-mail); Gary Pearce (E-mail)  
**Subject:** RE: Interference Complaint Regarding your BPL System

Thank you for your e-mail. Please forward to me all details regarding your April 18 experience. Please include all information regarding the exact locations where the interference allegedly occurred, the type of equipment you were using, details as to how you measured distances, witnesses to the events, who you tried to communicate with during your tests, how you determined that the interference was caused by Progress Energy's BPL system, efforts you made to mitigate the interference, what prompted you to do the tests, how you decided where to go, others you consulted with prior performing the tests, etc.  
Len

-----Original Message-----

**From:** Fletch [mailto:visualsystems@nc.rr.com]  
**Sent:** Sat 4/24/2004 3:21 PM  
**To:** Len Anthony (E-mail)  
**Cc:** Alan R. Stillwell (E-mail); Anh Wride (E-mail); Ed Hare (E-mail); Frank A. Lynch (E-mail); James R. Burtle (E-mail); Riley Hollingsworth (E-mail); Dennis Rysell (E-mail); Gary Pearce (E-mail)  
**Subject:** Interference Complaint Regarding your BPL System

Hi Len,

I am making a formal complaint of interference from your BPL Test Site in Fuquay Varina, NC.  
On Sunday, April 18th, 2004, I drove into the Fuquay Varina area with my friend, Dennis Rysell, KG4HJO, to better understand the extent of BPL signals from your system. We heard high levels of noise, S9 and over, on a wide section of frequencies.  
We noted BPL signals from 14.300 MHz to 28.100 MHz. The 15 and 17 meter bands were "notched" out, but we could still detect some signals.  
Please note: 14.300MHz to 14.350MHz is in the Amateur Radio band and your signals were very noticeable, and HARMFUL to my communications.  
In other words, these frequencies were unusable for any communications work.  
The BPL Signals were S9 within 2,000 feet of the power lines.